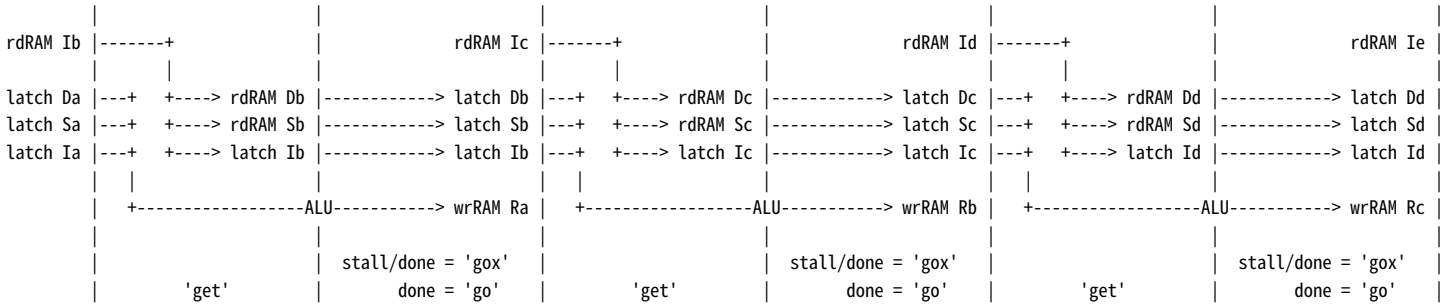

instruction timing

clk



instructions

EEEE	0000000	CZI	DDDDDDDD	SSSSSSSS	ROR	D,S/#	{WC/WZ/WCZ}
EEEE	0000001	CZI	DDDDDDDD	SSSSSSSS	ROL	D,S/#	{WC/WZ/WCZ}
EEEE	0000010	CZI	DDDDDDDD	SSSSSSSS	SHR	D,S/#	{WC/WZ/WCZ}
EEEE	0000011	CZI	DDDDDDDD	SSSSSSSS	SHL	D,S/#	{WC/WZ/WCZ}
EEEE	0000100	CZI	DDDDDDDD	SSSSSSSS	RCR	D,S/#	{WC/WZ/WCZ}
EEEE	0000101	CZI	DDDDDDDD	SSSSSSSS	RCL	D,S/#	{WC/WZ/WCZ}
EEEE	0000110	CZI	DDDDDDDD	SSSSSSSS	SAR	D,S/#	{WC/WZ/WCZ}
EEEE	0000111	CZI	DDDDDDDD	SSSSSSSS	SAL	D,S/#	{WC/WZ/WCZ}
EEEE	0001000	CZI	DDDDDDDD	SSSSSSSS	ADD	D,S/#	{WC/WZ/WCZ}
EEEE	0001001	CZI	DDDDDDDD	SSSSSSSS	ADDX	D,S/#	{WC/WZ/WCZ}
EEEE	0001010	CZI	DDDDDDDD	SSSSSSSS	ADDS	D,S/#	{WC/WZ/WCZ}
EEEE	0001011	CZI	DDDDDDDD	SSSSSSSS	ADDSX	D,S/#	{WC/WZ/WCZ}
EEEE	0001100	CZI	DDDDDDDD	SSSSSSSS	SUB	D,S/#	{WC/WZ/WCZ}
EEEE	0001101	CZI	DDDDDDDD	SSSSSSSS	SUBX	D,S/#	{WC/WZ/WCZ}
EEEE	0001110	CZI	DDDDDDDD	SSSSSSSS	SUBS	D,S/#	{WC/WZ/WCZ}
EEEE	0001111	CZI	DDDDDDDD	SSSSSSSS	SUBSX	D,S/#	{WC/WZ/WCZ}
EEEE	0010000	CZI	DDDDDDDD	SSSSSSSS	CMP	D,S/#	{WC/WZ/WCZ}
EEEE	0010001	CZI	DDDDDDDD	SSSSSSSS	CMPX	D,S/#	{WC/WZ/WCZ}
EEEE	0010010	CZI	DDDDDDDD	SSSSSSSS	CMPS	D,S/#	{WC/WZ/WCZ}
EEEE	0010011	CZI	DDDDDDDD	SSSSSSSS	CMPSX	D,S/#	{WC/WZ/WCZ}
EEEE	0010100	CZI	DDDDDDDD	SSSSSSSS	CMPR	D,S/#	{WC/WZ/WCZ}
EEEE	0010101	CZI	DDDDDDDD	SSSSSSSS	CMPM	D,S/#	{WC/WZ/WCZ}
EEEE	0010110	CZI	DDDDDDDD	SSSSSSSS	SUBR	D,S/#	{WC/WZ/WCZ}
EEEE	0010111	CZI	DDDDDDDD	SSSSSSSS	CMPSUB	D,S/#	{WC/WZ/WCZ}
EEEE	0011000	CZI	DDDDDDDD	SSSSSSSS	FGE	D,S/#	{WC/WZ/WCZ}
EEEE	0011001	CZI	DDDDDDDD	SSSSSSSS	FLE	D,S/#	{WC/WZ/WCZ}
EEEE	0011010	CZI	DDDDDDDD	SSSSSSSS	FGES	D,S/#	{WC/WZ/WCZ}
EEEE	0011011	CZI	DDDDDDDD	SSSSSSSS	FLES	D,S/#	{WC/WZ/WCZ}
EEEE	0011100	CZI	DDDDDDDD	SSSSSSSS	SUMC	D,S/#	{WC/WZ/WCZ}
EEEE	0011101	CZI	DDDDDDDD	SSSSSSSS	SUMNC	D,S/#	{WC/WZ/WCZ}
EEEE	0011110	CZI	DDDDDDDD	SSSSSSSS	SUMZ	D,S/#	{WC/WZ/WCZ}
EEEE	0011111	CZI	DDDDDDDD	SSSSSSSS	SUMNZ	D,S/#	{WC/WZ/WCZ}
EEEE	0100000	CZI	DDDDDDDD	SSSSSSSS	TESTB	D,S/#	WC/WZ
EEEE	0100001	CZI	DDDDDDDD	SSSSSSSS	TESTBN	D,S/#	WC/WZ
EEEE	0100010	CZI	DDDDDDDD	SSSSSSSS	TESTB	D,S/#	ANDC/ANDZ
EEEE	0100011	CZI	DDDDDDDD	SSSSSSSS	TESTBN	D,S/#	ANDC/ANDZ
EEEE	0100100	CZI	DDDDDDDD	SSSSSSSS	TESTB	D,S/#	ORC/ORZ
EEEE	0100101	CZI	DDDDDDDD	SSSSSSSS	TESTBN	D,S/#	ORC/ORZ
EEEE	0100110	CZI	DDDDDDDD	SSSSSSSS	TESTB	D,S/#	XORC/XORZ
EEEE	0100111	CZI	DDDDDDDD	SSSSSSSS	TESTBN	D,S/#	XORC/XORZ
EEEE	0100000	CZI	DDDDDDDD	SSSSSSSS	BITL	D,S/#	{WCZ}
EEEE	0100001	CZI	DDDDDDDD	SSSSSSSS	BITH	D,S/#	{WCZ}
EEEE	0100010	CZI	DDDDDDDD	SSSSSSSS	BITC	D,S/#	{WCZ}
EEEE	0100011	CZI	DDDDDDDD	SSSSSSSS	BITNC	D,S/#	{WCZ}
EEEE	0100100	CZI	DDDDDDDD	SSSSSSSS	BITZ	D,S/#	{WCZ}
EEEE	0100101	CZI	DDDDDDDD	SSSSSSSS	BITNZ	D,S/#	{WCZ}
EEEE	0100110	CZI	DDDDDDDD	SSSSSSSS	BITRND	D,S/#	{WCZ}
EEEE	0100111	CZI	DDDDDDDD	SSSSSSSS	BITNOT	D,S/#	{WCZ}
EEEE	0101000	CZI	DDDDDDDD	SSSSSSSS	AND	D,S/#	{WC/WZ/WCZ}

EEEE	0101001	CZI	DDDDDDDD	SSSSSSSS	ANDN	D,S/#	{WC/WZ/WCZ}
EEEE	0101010	CZI	DDDDDDDD	SSSSSSSS	OR	D,S/#	{WC/WZ/WCZ}
EEEE	0101011	CZI	DDDDDDDD	SSSSSSSS	XOR	D,S/#	{WC/WZ/WCZ}
EEEE	0101100	CZI	DDDDDDDD	SSSSSSSS	MUXC	D,S/#	{WC/WZ/WCZ}
EEEE	0101101	CZI	DDDDDDDD	SSSSSSSS	MUXNC	D,S/#	{WC/WZ/WCZ}
EEEE	0101110	CZI	DDDDDDDD	SSSSSSSS	MUXZ	D,S/#	{WC/WZ/WCZ}
EEEE	0101111	CZI	DDDDDDDD	SSSSSSSS	MUXNZ	D,S/#	{WC/WZ/WCZ}
EEEE	0110000	CZI	DDDDDDDD	SSSSSSSS	MOV	D,S/#	{WC/WZ/WCZ}
EEEE	0110001	CZI	DDDDDDDD	SSSSSSSS	NOT	D,S/#	{WC/WZ/WCZ}
EEEE	0110010	CZI	DDDDDDDD	SSSSSSSS	ABS	D,S/#	{WC/WZ/WCZ}
EEEE	0110011	CZI	DDDDDDDD	SSSSSSSS	NEG	D,S/#	{WC/WZ/WCZ}
EEEE	0110100	CZI	DDDDDDDD	SSSSSSSS	NEGC	D,S/#	{WC/WZ/WCZ}
EEEE	0110101	CZI	DDDDDDDD	SSSSSSSS	NEGNC	D,S/#	{WC/WZ/WCZ}
EEEE	0110110	CZI	DDDDDDDD	SSSSSSSS	NEGZ	D,S/#	{WC/WZ/WCZ}
EEEE	0110111	CZI	DDDDDDDD	SSSSSSSS	NEGNZ	D,S/#	{WC/WZ/WCZ}
EEEE	0111000	CZI	DDDDDDDD	SSSSSSSS	INCMOD	D,S/#	{WC/WZ/WCZ}
EEEE	0111001	CZI	DDDDDDDD	SSSSSSSS	DECMOD	D,S/#	{WC/WZ/WCZ}
EEEE	0111010	CZI	DDDDDDDD	SSSSSSSS	ZEROX	D,S/#	{WC/WZ/WCZ}
EEEE	0111011	CZI	DDDDDDDD	SSSSSSSS	SIGNX	D,S/#	{WC/WZ/WCZ}
EEEE	0111100	CZI	DDDDDDDD	SSSSSSSS	ENCOD	D,S/#	{WC/WZ/WCZ}
EEEE	0111101	CZI	DDDDDDDD	SSSSSSSS	ONES	D,S/#	{WC/WZ/WCZ}
EEEE	0111110	CZI	DDDDDDDD	SSSSSSSS	TEST	D,S/#	{WC/WZ/WCZ}
EEEE	0111111	CZI	DDDDDDDD	SSSSSSSS	TESTN	D,S/#	{WC/WZ/WCZ}
EEEE	100000N	NNI	DDDDDDDD	SSSSSSSS	SETNIB	D,S/#,#N	
EEEE	100001N	NNI	DDDDDDDD	SSSSSSSS	GETNIB	D,S/#,#N	
EEEE	100010N	NNI	DDDDDDDD	SSSSSSSS	ROLNIB	D,S/#,#N	
EEEE	1000110	NNI	DDDDDDDD	SSSSSSSS	SETBYTE	D,S/#,#N	
EEEE	1000111	NNI	DDDDDDDD	SSSSSSSS	GETBYTE	D,S/#,#N	
EEEE	1001000	NNI	DDDDDDDD	SSSSSSSS	ROLBYTE	D,S/#,#N	
EEEE	1001001	ONI	DDDDDDDD	SSSSSSSS	SETWORD	D,S/#,#N	
EEEE	1001001	1NI	DDDDDDDD	SSSSSSSS	GETWORD	D,S/#,#N	
EEEE	1001010	ONI	DDDDDDDD	SSSSSSSS	ROLWORD	D,S/#,#N	
EEEE	1001010	1OI	DDDDDDDD	SSSSSSSS	ALTSN	D,S/#	
EEEE	1001010	11I	DDDDDDDD	SSSSSSSS	ALTGN	D,S/#	
EEEE	1001011	00I	DDDDDDDD	SSSSSSSS	ALTSB	D,S/#	
EEEE	1001011	01I	DDDDDDDD	SSSSSSSS	ALTGB	D,S/#	
EEEE	1001011	10I	DDDDDDDD	SSSSSSSS	ALTSW	D,S/#	
EEEE	1001011	11I	DDDDDDDD	SSSSSSSS	ALTGW	D,S/#	
EEEE	1001100	00I	DDDDDDDD	SSSSSSSS	ALTR	D,S/#	
EEEE	1001100	01I	DDDDDDDD	SSSSSSSS	ALTD	D,S/#	
EEEE	1001100	10I	DDDDDDDD	SSSSSSSS	ALTS	D,S/#	
EEEE	1001100	11I	DDDDDDDD	SSSSSSSS	ALTB	D,S/#	
EEEE	1001101	00I	DDDDDDDD	SSSSSSSS	ALTI	D,S/#	
EEEE	1001101	01I	DDDDDDDD	SSSSSSSS	SETR	D,S/#	
EEEE	1001101	10I	DDDDDDDD	SSSSSSSS	SETD	D,S/#	
EEEE	1001101	11I	DDDDDDDD	SSSSSSSS	SETS	D,S/#	
EEEE	1001110	00I	DDDDDDDD	SSSSSSSS	DECOD	D,S/#	
EEEE	1001110	01I	DDDDDDDD	SSSSSSSS	BMASK	D,S/#	
EEEE	1001110	10I	DDDDDDDD	SSSSSSSS	CRCBIT	D,S/#	
EEEE	1001110	11I	DDDDDDDD	SSSSSSSS	CRCNIB	D,S/#	
EEEE	1001111	00I	DDDDDDDD	SSSSSSSS	MUXNITS	D,S/#	
EEEE	1001111	01I	DDDDDDDD	SSSSSSSS	MUXNIBS	D,S/#	
EEEE	1001111	10I	DDDDDDDD	SSSSSSSS	MUXQ	D,S/#	
EEEE	1001111	11I	DDDDDDDD	SSSSSSSS	MOVBYTS	D,S/#	
EEEE	1010000	OZI	DDDDDDDD	SSSSSSSS	MUL	D,S/#	{WZ}
EEEE	1010000	1ZI	DDDDDDDD	SSSSSSSS	MULS	D,S/#	{WZ}
EEEE	1010001	OZI	DDDDDDDD	SSSSSSSS	SCA	D,S/#	{WZ}
EEEE	1010001	1ZI	DDDDDDDD	SSSSSSSS	SCAS	D,S/#	{WZ}
EEEE	1010010	00I	DDDDDDDD	SSSSSSSS	ADDPIX	D,S/#	
EEEE	1010010	01I	DDDDDDDD	SSSSSSSS	MULPIX	D,S/#	
EEEE	1010010	10I	DDDDDDDD	SSSSSSSS	BLNPIX	D,S/#	
EEEE	1010010	11I	DDDDDDDD	SSSSSSSS	MIXPIX	D,S/#	
EEEE	1010011	00I	DDDDDDDD	SSSSSSSS	ADDCT1	D,S/#	
EEEE	1010011	01I	DDDDDDDD	SSSSSSSS	ADDCT2	D,S/#	
EEEE	1010011	10I	DDDDDDDD	SSSSSSSS	ADDCT3	D,S/#	
EEEE	1010011	11I	DDDDDDDD	SSSSSSSS	WMLONG	D,S/#/PTRx	
EEEE	1010100	C0I	DDDDDDDD	SSSSSSSS	RQPIN	D,S/#	{WC}
EEEE	1010100	C1I	DDDDDDDD	SSSSSSSS	RDPIN	D,S/#	{WC}
EEEE	1010101	CZI	DDDDDDDD	SSSSSSSS	RDLUT	D,S/#	{WC/WZ/WCZ}
EEEE	1010110	CZI	DDDDDDDD	SSSSSSSS	RDBYTE	D,S/#/PTRx	{WC/WZ/WCZ}
EEEE	1010111	CZI	DDDDDDDD	SSSSSSSS	RDWORD	D,S/#/PTRx	{WC/WZ/WCZ}
EEEE	1011000	CZI	DDDDDDDD	SSSSSSSS	RDLONG	D,S/#/PTRx	{WC/WZ/WCZ}

EEEE	1011001	CZI	DDDDDDDD	SSSSSSSS	CALLD	D,S/#rel9	{WC/WZ/WCZ}
EEEE	1011010	OLI	DDDDDDDD	SSSSSSSS	CALLPA	D/#,S/#rel9	
EEEE	1011010	1LI	DDDDDDDD	SSSSSSSS	CALLPB	D/#,S/#rel9	
EEEE	1011011	00I	DDDDDDDD	SSSSSSSS	DJZ	D,S/#rel9	
EEEE	1011011	01I	DDDDDDDD	SSSSSSSS	DJNZ	D,S/#rel9	
EEEE	1011011	10I	DDDDDDDD	SSSSSSSS	DJF	D,S/#rel9	
EEEE	1011011	11I	DDDDDDDD	SSSSSSSS	DJNF	D,S/#rel9	
EEEE	1011100	00I	DDDDDDDD	SSSSSSSS	IJZ	D,S/#rel9	
EEEE	1011100	01I	DDDDDDDD	SSSSSSSS	IJNZ	D,S/#rel9	
EEEE	1011100	10I	DDDDDDDD	SSSSSSSS	TJZ	D,S/#rel9	
EEEE	1011100	11I	DDDDDDDD	SSSSSSSS	TJNZ	D,S/#rel9	
EEEE	1011101	00I	DDDDDDDD	SSSSSSSS	TJF	D,S/#rel9	
EEEE	1011101	01I	DDDDDDDD	SSSSSSSS	TJNF	D,S/#rel9	
EEEE	1011101	10I	DDDDDDDD	SSSSSSSS	TJS	D,S/#rel9	
EEEE	1011101	11I	DDDDDDDD	SSSSSSSS	TJNS	D,S/#rel9	
EEEE	1011110	00I	DDDDDDDD	SSSSSSSS	TJV	D,S/#rel9	
EEEE	1011110	01I	00000000	SSSSSSSS	JINT	S/#rel9	
EEEE	1011110	01I	00000001	SSSSSSSS	JCT1	S/#rel9	
EEEE	1011110	01I	00000010	SSSSSSSS	JCT2	S/#rel9	
EEEE	1011110	01I	00000011	SSSSSSSS	JCT3	S/#rel9	
EEEE	1011110	01I	00000100	SSSSSSSS	JSE1	S/#rel9	
EEEE	1011110	01I	00000101	SSSSSSSS	JSE2	S/#rel9	
EEEE	1011110	01I	00000110	SSSSSSSS	JSE3	S/#rel9	
EEEE	1011110	01I	00000111	SSSSSSSS	JSE4	S/#rel9	
EEEE	1011110	01I	00001000	SSSSSSSS	JPAT	S/#rel9	
EEEE	1011110	01I	00001001	SSSSSSSS	JFBW	S/#rel9	
EEEE	1011110	01I	00001010	SSSSSSSS	JXMT	S/#rel9	
EEEE	1011110	01I	00001011	SSSSSSSS	JXFI	S/#rel9	
EEEE	1011110	01I	00001100	SSSSSSSS	JXRO	S/#rel9	
EEEE	1011110	01I	00001101	SSSSSSSS	JXRL	S/#rel9	
EEEE	1011110	01I	00001110	SSSSSSSS	JATN	S/#rel9	
EEEE	1011110	01I	00001111	SSSSSSSS	JQMT	S/#rel9	
EEEE	1011110	01I	00010000	SSSSSSSS	JNINT	S/#rel9	
EEEE	1011110	01I	00010001	SSSSSSSS	JNCT1	S/#rel9	
EEEE	1011110	01I	00010010	SSSSSSSS	JNCT2	S/#rel9	
EEEE	1011110	01I	00010011	SSSSSSSS	JNCT3	S/#rel9	
EEEE	1011110	01I	00010100	SSSSSSSS	JNSE1	S/#rel9	
EEEE	1011110	01I	00010101	SSSSSSSS	JNSE2	S/#rel9	
EEEE	1011110	01I	00010110	SSSSSSSS	JNSE3	S/#rel9	
EEEE	1011110	01I	00010111	SSSSSSSS	JNSE4	S/#rel9	
EEEE	1011110	01I	00011000	SSSSSSSS	JNPAT	S/#rel9	
EEEE	1011110	01I	00011001	SSSSSSSS	JNFBW	S/#rel9	
EEEE	1011110	01I	00011010	SSSSSSSS	JNXMT	S/#rel9	
EEEE	1011110	01I	00011011	SSSSSSSS	JNXFI	S/#rel9	
EEEE	1011110	01I	00011100	SSSSSSSS	JNXRO	S/#rel9	
EEEE	1011110	01I	00011101	SSSSSSSS	JNXRL	S/#rel9	
EEEE	1011110	01I	00011110	SSSSSSSS	JNATN	S/#rel9	
EEEE	1011110	01I	00011111	SSSSSSSS	JNQMT	S/#rel9	
EEEE	1011110	1LI	DDDDDDDD	SSSSSSSS	<empty>	D/#,S/#	
EEEE	1011111	OLI	DDDDDDDD	SSSSSSSS	<empty>	D/#,S/#	
EEEE	1011111	1LI	DDDDDDDD	SSSSSSSS	SETPAT	D/#,S/#	
EEEE	1100000	OLI	DDDDDDDD	SSSSSSSS	WRPIN	D/#,S/#	
EEEE	1100000	1LI	DDDDDDDD	SSSSSSSS	WXPIN	D/#,S/#	
EEEE	1100001	OLI	DDDDDDDD	SSSSSSSS	WYPIN	D/#,S/#	
EEEE	1100001	1LI	DDDDDDDD	SSSSSSSS	WRLUT	D/#,S/#	
EEEE	1100010	OLI	DDDDDDDD	SSSSSSSS	WRBYTE	D/#,S/#/PTRx	
EEEE	1100010	1LI	DDDDDDDD	SSSSSSSS	WRWORD	D/#,S/#/PTRx	
EEEE	1100011	OLI	DDDDDDDD	SSSSSSSS	WRLONG	D/#,S/#/PTRx	
EEEE	1100011	1LI	DDDDDDDD	SSSSSSSS	RDFAST	D/#,S/#	
EEEE	1100100	OLI	DDDDDDDD	SSSSSSSS	WRFAST	D/#,S/#	
EEEE	1100100	1LI	DDDDDDDD	SSSSSSSS	FBLOCK	D/#,S/#	
EEEE	1100101	OLI	DDDDDDDD	SSSSSSSS	XINIT	D/#,S/#	
EEEE	1100101	1LI	DDDDDDDD	SSSSSSSS	XZERO	D/#,S/#	
EEEE	1100110	OLI	DDDDDDDD	SSSSSSSS	XCONT	D/#,S/#	
EEEE	1100110	1LI	DDDDDDDD	SSSSSSSS	REP	D/#,S/#	
EEEE	1100111	CLI	DDDDDDDD	SSSSSSSS	COGINIT	D/#,S/#	{WC}
EEEE	1101000	OLI	DDDDDDDD	SSSSSSSS	QMUL	D/#,S/#	
EEEE	1101000	1LI	DDDDDDDD	SSSSSSSS	QDIV	D/#,S/#	
EEEE	1101001	OLI	DDDDDDDD	SSSSSSSS	QFRAC	D/#,S/#	

EEEE	1101001	1LI	DDDDDDDD	SSSSSSSS	QSQRT	D/#, S/#	
EEEE	1101010	0LI	DDDDDDDD	SSSSSSSS	QROTATE	D/#, S/#	
EEEE	1101010	1LI	DDDDDDDD	SSSSSSSS	QVECTOR	D/#, S/#	
EEEE	1101011	00L	DDDDDDDD	00000000	HUBSET	D/#	
EEEE	1101011	C0L	DDDDDDDD	00000001	COGID	D/#	{WC}
EEEE	1101011	00L	DDDDDDDD	00000011	COGSTOP	D/#	
EEEE	1101011	C00	DDDDDDDD	00000100	LOCKNEW	D	{WC}
EEEE	1101011	00L	DDDDDDDD	00000101	LOCKRET	D/#	
EEEE	1101011	C0L	DDDDDDDD	00000110	* LOCKTRY	D/#	{WC}
EEEE	1101011	00L	DDDDDDDD	00000111	* LOCKREL	D/#	{WC}
EEEE	1101011	00L	DDDDDDDD	000001110	QLOG	D/#	
EEEE	1101011	00L	DDDDDDDD	000001111	QEXP	D/#	
EEEE	1101011	CZ0	DDDDDDDD	000010000	RFBYTE	D	{WC/WZ/WCZ}
EEEE	1101011	CZ0	DDDDDDDD	000010001	RFWORD	D	{WC/WZ/WCZ}
EEEE	1101011	CZ0	DDDDDDDD	000010010	RFLONG	D	{WC/WZ/WCZ}
EEEE	1101011	CZ0	DDDDDDDD	000010011	RFVAR	D	{WC/WZ/WCZ}
EEEE	1101011	CZ0	DDDDDDDD	000010100	RFVARS	D	{WC/WZ/WCZ}
EEEE	1101011	00L	DDDDDDDD	000010101	WFBYTE	D/#	
EEEE	1101011	00L	DDDDDDDD	000010110	WFWORD	D/#	
EEEE	1101011	00L	DDDDDDDD	000010111	WFLONG	D/#	
EEEE	1101011	CZ0	DDDDDDDD	000011000	GETQX	D	{WC/WZ/WCZ}
EEEE	1101011	CZ0	DDDDDDDD	000011001	GETQY	D	{WC/WZ/WCZ}
EEEE	1101011	000	DDDDDDDD	000011010	GETCT	D	
EEEE	1101011	CZL	DDDDDDDD	000011011	GETRND	{D}	{WC/WZ/WCZ}
EEEE	1101011	00L	DDDDDDDD	000011100	SETDACS	D/#	
EEEE	1101011	00L	DDDDDDDD	000011101	SETXFRQ	D/#	
EEEE	1101011	000	DDDDDDDD	000011110	GETXACC	D	
EEEE	1101011	CZL	DDDDDDDD	000011111	* WAITX	D/#	{WC/WZ/WCZ}
EEEE	1101011	00L	DDDDDDDD	000100000	SETSE1	D/#	
EEEE	1101011	00L	DDDDDDDD	000100001	SETSE2	D/#	
EEEE	1101011	00L	DDDDDDDD	000100010	SETSE3	D/#	
EEEE	1101011	00L	DDDDDDDD	000100011	SETSE4	D/#	
EEEE	1101011	CZ0	00000000	000100100	POLLINT		{WC/WZ/WCZ}
EEEE	1101011	CZ0	00000001	000100100	POLLCT1		{WC/WZ/WCZ}
EEEE	1101011	CZ0	00000010	000100100	POLLCT2		{WC/WZ/WCZ}
EEEE	1101011	CZ0	00000011	000100100	POLLCT3		{WC/WZ/WCZ}
EEEE	1101011	CZ0	00000100	000100100	POLLSE1		{WC/WZ/WCZ}
EEEE	1101011	CZ0	00000101	000100100	POLLSE2		{WC/WZ/WCZ}
EEEE	1101011	CZ0	00000110	000100100	POLLSE3		{WC/WZ/WCZ}
EEEE	1101011	CZ0	00000111	000100100	POLLSE4		{WC/WZ/WCZ}
EEEE	1101011	CZ0	000001000	000100100	POLLPAT		{WC/WZ/WCZ}
EEEE	1101011	CZ0	000001001	000100100	POLLFBW		{WC/WZ/WCZ}
EEEE	1101011	CZ0	000001010	000100100	POLLXMT		{WC/WZ/WCZ}
EEEE	1101011	CZ0	000001011	000100100	POLLXFI		{WC/WZ/WCZ}
EEEE	1101011	CZ0	000001100	000100100	POLLXRO		{WC/WZ/WCZ}
EEEE	1101011	CZ0	000001101	000100100	POLLXRL		{WC/WZ/WCZ}
EEEE	1101011	CZ0	000001110	000100100	POLLATN		{WC/WZ/WCZ}
EEEE	1101011	CZ0	000001111	000100100	POLLQMT		{WC/WZ/WCZ}
EEEE	1101011	CZ0	000010000	000100100	WAITINT		{WC/WZ/WCZ}
EEEE	1101011	CZ0	000010001	000100100	WAITCT1		{WC/WZ/WCZ}
EEEE	1101011	CZ0	000010010	000100100	WAITCT2		{WC/WZ/WCZ}
EEEE	1101011	CZ0	000010011	000100100	WAITCT3		{WC/WZ/WCZ}
EEEE	1101011	CZ0	000010100	000100100	WAITSE1		{WC/WZ/WCZ}
EEEE	1101011	CZ0	000010101	000100100	WAITSE2		{WC/WZ/WCZ}
EEEE	1101011	CZ0	000010110	000100100	WAITSE3		{WC/WZ/WCZ}
EEEE	1101011	CZ0	000010111	000100100	WAITSE4		{WC/WZ/WCZ}
EEEE	1101011	CZ0	000011000	000100100	WAITPAT		{WC/WZ/WCZ}
EEEE	1101011	CZ0	000011001	000100100	WAITFBW		{WC/WZ/WCZ}
EEEE	1101011	CZ0	000011010	000100100	WAITXMT		{WC/WZ/WCZ}
EEEE	1101011	CZ0	000011011	000100100	WAITXFI		{WC/WZ/WCZ}
EEEE	1101011	CZ0	000011100	000100100	WAITXRO		{WC/WZ/WCZ}
EEEE	1101011	CZ0	000011101	000100100	WAITXRL		{WC/WZ/WCZ}
EEEE	1101011	CZ0	000011110	000100100	WAITATN		{WC/WZ/WCZ}
EEEE	1101011	000	000100000	000100100	ALLOWI		
EEEE	1101011	000	000100001	000100100	STALLI		
EEEE	1101011	000	000100010	000100100	TRGINT1		
EEEE	1101011	000	000100011	000100100	TRGINT2		
EEEE	1101011	000	000100100	000100100	TRGINT3		
EEEE	1101011	000	000100101	000100100	NIXINT1		
EEEE	1101011	000	000100110	000100100	NIXINT2		
EEEE	1101011	000	000100111	000100100	NIXINT3		

EEEE	1101011	00L	DDDDDDDD	000100101	SETINT1	D/#	
EEEE	1101011	00L	DDDDDDDD	000100110	SETINT2	D/#	
EEEE	1101011	00L	DDDDDDDD	000100111	SETINT3	D/#	
EEEE	1101011	00L	DDDDDDDD	000101000	SETQ	D/#	
EEEE	1101011	00L	DDDDDDDD	000101001	SETQ2	D/#	
EEEE	1101011	00L	DDDDDDDD	000101010	PUSH	D/#	
EEEE	1101011	CZ0	DDDDDDDD	000101011	POP	D	{WC/WZ/WCZ}
EEEE	1101011	CZ0	DDDDDDDD	000101100	JMP	D	{WC/WZ/WCZ}
EEEE	1101011	CZ0	DDDDDDDD	000101101	CALL	D	{WC/WZ/WCZ}
EEEE	1101011	CZ1	00000000	000101101	RET		{WC/WZ/WCZ}
EEEE	1101011	CZ0	DDDDDDDD	000101110	CALLA	D	{WC/WZ/WCZ}
EEEE	1101011	CZ1	00000000	000101110	RETA		{WC/WZ/WCZ}
EEEE	1101011	CZ0	DDDDDDDD	000101111	CALLB	D	{WC/WZ/WCZ}
EEEE	1101011	CZ1	00000000	000101111	RETB		{WC/WZ/WCZ}
EEEE	1101011	00L	DDDDDDDD	000110000	JMPREL	D/#	
EEEE	1101011	00L	DDDDDDDD	000110001	SKIP	D/#	
EEEE	1101011	00L	DDDDDDDD	000110010	SKIPF	D/#	
EEEE	1101011	00L	DDDDDDDD	000110011	EXECF	D/#	
EEEE	1101011	000	DDDDDDDD	000110100	GETPTR	D	
EEEE	1101011	CZ0	DDDDDDDD	000110101	* GETBRK	D	{WC/WZ/WCZ}
EEEE	1101011	00L	DDDDDDDD	000110101	* COGBRK	D	
EEEE	1101011	00L	DDDDDDDD	000110110	* BRK	D/#	
EEEE	1101011	00L	DDDDDDDD	000110111	SETLUTS	D/#	
EEEE	1101011	00L	DDDDDDDD	000111000	SETCY	D/#	
EEEE	1101011	00L	DDDDDDDD	000111001	SETCI	D/#	
EEEE	1101011	00L	DDDDDDDD	000111010	SETCQ	D/#	
EEEE	1101011	00L	DDDDDDDD	000111011	SETCFRQ	D/#	
EEEE	1101011	00L	DDDDDDDD	000111100	SETCMOD	D/#	
EEEE	1101011	00L	DDDDDDDD	000111101	SETPIV	D/#	
EEEE	1101011	00L	DDDDDDDD	000111110	SETPIX	D/#	
EEEE	1101011	00L	DDDDDDDD	000111111	COGATN	D/#	
EEEE	1101011	CZL	DDDDDDDD	001000000	TESTP	D/#	WC/WZ
EEEE	1101011	CZL	DDDDDDDD	001000001	TESTPN	D/#	WC/WZ
EEEE	1101011	CZL	DDDDDDDD	001000010	TESTP	D/#	ANDC/ANDZ
EEEE	1101011	CZL	DDDDDDDD	001000011	TESTPN	D/#	ANDC/ANDZ
EEEE	1101011	CZL	DDDDDDDD	001000100	TESTP	D/#	ORC/ORZ
EEEE	1101011	CZL	DDDDDDDD	001000101	TESTPN	D/#	ORC/ORZ
EEEE	1101011	CZL	DDDDDDDD	001000110	TESTP	D/#	XORC/XORZ
EEEE	1101011	CZL	DDDDDDDD	001000111	TESTPN	D/#	XORC/XORZ
EEEE	1101011	CZL	DDDDDDDD	001000000	DIRL	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001000001	DIRH	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001000010	DIRC	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001000011	DIRNC	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001000100	DIRZ	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001000101	DIRNZ	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001000110	DIRRND	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001000111	DIRNOT	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001001000	OUTL	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001001001	OUTH	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001001010	OUTC	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001001011	OUTNC	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001001100	OUTZ	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001001101	OUTNZ	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001001110	OUTRND	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001001111	OUTNOT	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001010000	FLTL	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001010001	FLTH	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001010010	FLTC	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001010011	FLTNC	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001010100	FLTZ	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001010101	FLTNZ	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001010110	FLTRND	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001010111	FLTNOT	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001011000	DRVL	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001011001	DRVH	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001011010	DRVC	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001011011	DRVNC	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001011100	DRVZ	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001011101	DRVNZ	D/#	{WCZ}

EEEE	1101011	CZL	DDDDDDDD	001011110	DRVRND	D/#	{WCZ}
EEEE	1101011	CZL	DDDDDDDD	001011111	DRVNOT	D/#	{WCZ}
EEEE	1101011	000	DDDDDDDD	001100000	SPLITB	D	
EEEE	1101011	000	DDDDDDDD	001100001	MERGEB	D	
EEEE	1101011	000	DDDDDDDD	001100010	SPLITW	D	
EEEE	1101011	000	DDDDDDDD	001100011	MERGEW	D	
EEEE	1101011	000	DDDDDDDD	001100100	SEUSSF	D	
EEEE	1101011	000	DDDDDDDD	001100101	SEUSSR	D	
EEEE	1101011	000	DDDDDDDD	001100110	RGBSQZ	D	
EEEE	1101011	000	DDDDDDDD	001100111	RGBEXP	D	
EEEE	1101011	000	DDDDDDDD	001101000	XOR032	D	
EEEE	1101011	000	DDDDDDDD	001101001	REV	D	
EEEE	1101011	CZ0	DDDDDDDD	001101010	RCZR	D	{WC/WZ/WCZ}
EEEE	1101011	CZ0	DDDDDDDD	001101011	RCZL	D	{WC/WZ/WCZ}
EEEE	1101011	000	DDDDDDDD	001101100	WRC	D	
EEEE	1101011	000	DDDDDDDD	001101101	WRNC	D	
EEEE	1101011	000	DDDDDDDD	001101110	WRZ	D	
EEEE	1101011	000	DDDDDDDD	001101111	WRNZ	D	
EEEE	1101011	CZ1	0cccczzz	001101111	MODCZ	c,z	{WC/WZ/WCZ}
EEEE	1101100	RAA	AAAAAAAA	AAAAAAAA	JMP	#abs/#rel	
EEEE	1101101	RAA	AAAAAAAA	AAAAAAAA	CALL	#abs/#rel	
EEEE	1101110	RAA	AAAAAAAA	AAAAAAAA	CALLA	#abs/#rel	
EEEE	1101111	RAA	AAAAAAAA	AAAAAAAA	CALLB	#abs/#rel	
EEEE	11100WW	RAA	AAAAAAAA	AAAAAAAA	CALLD	reg,#abs/#rel	
EEEE	11101WW	RAA	AAAAAAAA	AAAAAAAA	LOC	reg,#abs/#rel	
EEEE	11110NN	NNN	NNNNNNNN	NNNNNNNN	AUGS	#23bits	
EEEE	11111NN	NNN	NNNNNNNN	NNNNNNNN	AUGD	#23bits	

* changed recently

instruction aliases

NOP		=	\$00000000		
NOT	reg	=	NOT	reg,reg	
ABS	reg	=	ABS	reg,reg	
NEG	reg	=	NEG	reg,reg	
NEGC	reg	=	NEGC	reg,reg	
NEGNC	reg	=	NEGNC	reg,reg	
NEGZ	reg	=	NEGZ	reg,reg	
NEGNZ	reg	=	NEGNZ	reg,reg	
ENCOD	reg	=	ENCOD	reg,reg	
ONES	reg	=	ONES	reg,reg	
TEST	reg	=	TEST	reg,reg	
SETNIB	reg/#	=	SETNIB	0,reg/#,#0	(use after ALTSN)
GETNIB	reg	=	GETNIB	reg,0,#0	(use after ALTGN)
ROLNIB	reg	=	ROLNIB	reg,0,#0	(use after ALTGN)
SETBYTE	reg/#	=	SETBYTE	0,reg/#,#0	(use after ALTSB)
GETBYTE	reg	=	GETBYTE	reg,0,#0	(use after ALTGB)
ROLBYTE	reg	=	ROLBYTE	reg,0,#0	(use after ALTGB)
SETWORD	reg/#	=	SETWORD	0,reg/#,#0	(use after ALTSW)
GETWORD	reg	=	GETWORD	reg,0,#0	(use after ALTGW)
ROLWORD	reg	=	ROLWORD	reg,0,#0	(use after ALTGW)
ALTSN	reg	=	ALTSN	reg,#0	
ALTGN	reg	=	ALTGN	reg,#0	
ALTSB	reg	=	ALTSB	reg,#0	
ALTGB	reg	=	ALTGB	reg,#0	
ALTSW	reg	=	ALTSW	reg,#0	
ALTGW	reg	=	ALTGW	reg,#0	
ALTR	reg	=	ALTR	reg,#0	
ALTD	reg	=	ALTD	reg,#0	
ALTS	reg	=	ALTS	reg,#0	
ALTB	reg	=	ALTB	reg,#0	
ALTI	reg	=	ALTI	reg,%%101_100_100 (substitute reg for next instruction)	
DECOD	reg	=	DECOD	reg,reg	
BMASK	reg	=	BMASK	reg,reg	
POPA	reg	=	RDLONG	reg,--PTRA	
POPB	reg	=	RDLONG	reg,--PTRB	
RESI3		=	CALLD	\$1F0,\$1F1	WCZ

RESI2	=	CALLD	\$1F2,\$1F3	WCZ
RESI1	=	CALLD	\$1F4,\$1F5	WCZ
RESIO	=	CALLD	INA,INB	WCZ
RETI3	=	CALLD	INB,\$1F1	WCZ
RETI2	=	CALLD	INB,\$1F3	WCZ
RETI1	=	CALLD	INB,\$1F5	WCZ
RETI0	=	CALLD	INB,INB	WCZ
AKPIN	reg/#	=	WRPIN	#1,reg/#
PUSHA	reg/#	=	WRLONG	reg/#,PTRA++
PUSHB	reg/#	=	WRLONG	reg/#,PTRB++
XSTOP		=	XINIT	#0,#0
LUTSOFF		=	SETLUTS	#0
LUTSON		=	SETLUTS	#1
MODC	c	=	MODCZ	c,0 {WC}
MODZ	z	=	MODCZ	0,z {WZ}

MODCZ constants

_CLR	=	%0000
_NC_AND_NZ	=	%0001
_NZ_AND_NC	=	%0001
_GT	=	%0001
_NC_AND_Z	=	%0010
_Z_AND_NC	=	%0010
_NC	=	%0011
_GE	=	%0011
_C_AND_NZ	=	%0100
_NZ_AND_C	=	%0100
_NZ	=	%0101
_NE	=	%0101
_C_NE_Z	=	%0110
_Z_NE_C	=	%0110
_NC_OR_NZ	=	%0111
_NZ_OR_NC	=	%0111
_C_AND_Z	=	%1000
_Z_AND_C	=	%1000
_C_EQ_Z	=	%1001
_Z_EQ_C	=	%1001
_Z	=	%1010
_E	=	%1010
_NC_OR_Z	=	%1011
_Z_OR_NC	=	%1011
_C	=	%1100
_LT	=	%1100
_C_OR_NZ	=	%1101
_NZ_OR_C	=	%1101
_C_OR_Z	=	%1110
_Z_OR_C	=	%1110
_LE	=	%1110
_SET	=	%1111

Examples:

MODCZ	_CLR, _Z_OR_C	WCZ	'C = 0, Z = C
MODCZ	_NZ, 0	WC	'C = !Z
MODCZ	0, _SET	WZ	'Z = 1
MODC	_NZ_AND_C	WC	'C = !Z & C
MODZ	_Z_NE_C	WZ	'Z = Z ^ C

notes

A symbol declared under ORGH will return its hub address when referenced.

A symbol declared under ORG will return its cog address when referenced, but can return its hub address, instead, if preceded by '@':

COGINIT #0, #@newcode

For immediate-branch and LOC address operands, "#" is used before the address. In cases where there is an option between absolute and relative addressing, the assembler will choose absolute addressing when the branch crosses between cog and hub domains, or relative addressing when the branch stays in the same domain. Absolute addressing can be forced by following "#" with "\".

```
CALLPA/CALLPB/DJZ..JNXRL/JNATN/JNQMT - rel_imm9/ind_reg20
JMP/CALL/CALLA/CALLB/CALLD          - abs_imm20/rel_imm20/ind_reg20
LOC                                  - abs_imm20/rel_imm20
```

If a constant larger than 9 bits is desired in an instruction, use "##", instead of "#" to invoke AUGS/AUGD:

```
AND    address,##$FFFFFF
DJNZ   reg,##far_away
```

The following assembler directives exist:

```
ORGH   {hub_address}
```

Set hub mode and an optional address to fill to with \$00 bytes.

```
ORG    {cog_address {,cog_address_limit}}
```

Set cog mode with optional cog address and limit. Defaults to \$000,\$200. If \$200..\$3FF used for cog address, LUT range selected. Doesn't generate any data.

```
ORGF   cog_address
```

Fill to cog_address with \$00 bytes. Must be in cog mode.

```
RES    {cog_registers}
```

Reserve cog registers. Defaults to 1. Doesn't generate any data. Must be in cog mode.

```
FIT    {cog_address}
```

Make sure cog code fits within cog address.

```
ALIGNW/ALIGNL
```

Align to next word/long in hub. Must be in hub mode.

```
BYTE   data{[count]}{,data{[count]}}...
```

```
WORD   data{[count]}{,data{[count]}}...
```

```
LONG   data{[count]}{,data{[count]}}...
```

Generate byte/word/long data with optional repeat count.